

Certificate of Mailing  
I hereby certify that this correspondence is being deposited  
on 10/29/06 with the United States Postal  
Service with sufficient postage as first class mail in an  
envelope addressed to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Typed or Printed name of person signing this certificate:

Karen Buzinski

Signature: Karen Buzinski

Customer Number

**24024**

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Yigong He et al.	)	Examiner: not yet assigned
	)	
Serial No.: 10/586,510	)	Art Unit: 1764
	)	
Filed: July 18, 2006	)	Attorney Docket No.: 31411/04002
	)	
For: <b>PROCESS FOR ALKYLATION OF AN</b>	)	Confirmation No.: 4640
<b>AROMATIC HYDROCARBON OR</b>	)	
<b>ISOALKANE WITH AN OLEFIN</b>	)	
<b>OVER THE CATALYSIS OF A</b>	)	
<b>SOLID ACID</b>	)	

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Dear Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56, Applicant hereby notifies the U.S. Patent and Trademark Office of the documents which are listed on the attached PTO/SB/08 A & B forms and/or listed herein and which the Examiner may deem material to patentability of the claims of the above-identified application.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

**FOREIGN LANGUAGE DOCUMENTS**

- ☒ In compliance with the concise explanation requirement under 37 C.F.R. § 1.98(a)(3) for foreign language documents, Applicant encloses herewith a copy of a Communication from a foreign patent office in a counterpart application citing such documents, together with that portion of the Communication indicating the degree of relevance found by the foreign patent office.

- ☒ In compliance with the concise explanation requirement under 37 C.F.R. § 1.98(a)(3) for foreign language documents, Applicant submits the following explanations: English Abstract attached for CN 1062307; CN 1125639; CN 1125640; CN 1184797; CN 1232814; CN 1246467 and JP 01245853.
- ☐ Complete English translations of foreign language documents are being submitted herewith, and therefore no concise explanation for such documents is required.

**CERTIFICATION AND FEE PAYMENT INFORMATION**

- ☒ The present Information Disclosure Statement is being filed: (1) No later than three months from the application's filing date; (2) Before the mailing date of the first Office Action on the merits (whichever is later); or (3) Before the mailing date of the first Office Action after filing a request for continued examination under 37 C.F.R. § 1.114, and therefore, no Statement under 37 C.F.R. § 1.97(e) or fee under 37 C.F.R. § 1.17(p) is required. If this is not the case, the patent office is hereby authorized to charge any related fee or credit any overpayments to **Deposit Account No. 030172, order number 31411/04002.**
- ☐ The present Information Disclosure Statement is being filed three months or fewer from a Communication from a foreign patent office and Applicant submits the following Statement Under 37 C.F.R. § 1.704(d). Each item of information contained in the Information Disclosure Statement was cited in a Communication from a foreign patent office in a counterpart application and this Communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The present Information Disclosure Statement is being filed after the later of three months from the application's filing date and mailing date of the first Office Action on the merits, but before a Final Office Action, Notice of Allowance, or an action that otherwise closes prosecution in the application (whichever is earlier), and therefore Applicant submits the following Statement under 37 C.F.R. § 1.97(e). No fee under 37 C.F.R. § 1.17(p) is required. If this is not the case, the patent office is hereby authorized to charge any related fee to **Deposit Account No. 030172**
- ☐ Each item of information contained in this information disclosure statement was cited in a Communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.

- ☐ No item of information contained in this information disclosure statement was cited in a Communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this statement.
- ☐ The present Information Disclosure Statement is being filed (without a Statement under 37 C.F.R. § 1.97(e)) after the later of three months from the application's filing date and the mailing date of the first Office Action on the merits, but before a Final Office Action, Notice of Allowance, or an action that otherwise closes prosecution in the application (whichever is earlier). Accordingly, Applicant submits the fee required under 37 C.F.R. § 1.17(p). The fee is being paid in the following manner:
- ☐ A check is attached in the amount of \$180.00 as required under 37 § 1.17(p).
- ☐ The patent office is hereby authorized to charge the amount of \$\_\_\_\_\_ and any related fee to **Deposit Account No. 030172**
- ☐ The present Information Disclosure Statement is being filed after the mailing of a final Office Action, Notice of Allowance or an action that otherwise closes prosecution in the application, but on or before the payment of the issue fee. Accordingly, Applicant submits the following Statement under 37 C.F.R. § 1.97(e) along with the fee required under 37 C.F.R. § 1.17(p).
- ☐ Each item of information contained in this information disclosure statement was cited in a Communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a Communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.
- AND, the fee is being paid in the following manner:
- ☐ A check is attached in the amount of \$180.00 as required under 37 § 1.17(p).
- ☐ The patent office is hereby authorized to charge the amount of \$\_\_\_\_\_ and any related fee to **Deposit Account No. 030172**

INFORMATION DISCLOSURE STATEMENT  
Appln. No. 10/586,510

Attorney Docket No. 31411/04002



**Please charge any fee deficiency or credit any overpayment to deposit account number 03-0172, order number 31411/04002.**

Respectfully submitted,

Date: 10/25/06

By: Kenneth J. Smith  
Kenneth J. Smith, Reg. No. 45,115  
Customer No. 24024  
Telephone: (216) 622-8674

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

1

of

4

**Complete if Known**

Application Number	10/586,510
Filing Date	July 18, 2006
First Named Inventor	Yigong He et al.
Art Unit	1764
Examiner Name	not yet assigned
Attorney Docket Number	31411/04002

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 3,549,557	12/22/1970	Bolton et al.	
		US- 3,644,565	02/22/1972	Biale	
		US- 3,647,916	03/07/1972	Ceaser et al.	
		US- 3,917,738	11/04/1975	Fenske et al.	
		US- 3,962,133	06/08/1976	Rodewald	
		US- 4,116,880	09/26/1978	Olah	
		US- 4,384,161	05/17/1983	Huang	
		US- 5,012,033	04/30/1991	Child et al.	
		US- 5,120,897	06/09/1992	Del Rossi et al.	
		US- 5,157,196	10/20/1992	Crossland et al.	
		US- 5,157,197	10/20/1992	Cooper et al.	
		US- 5,190,904	03/02/1993	Crossland et al.	
		US- 5,220,095	06/15/1993	Hommeltoft et al.	
		US- 5,221,777	06/22/1993	Huss, Jr. et al.	
		US- 5,245,101	09/14/1993	Del Rossi et al.	
		US- 5,288,685	02/22/1994	Kallenbach et al.	
		US- 5,324,881	06/28/1994	Kresge et al.	
		US- 5,346,676	09/13/1994	Crossland et al.	
		US- 5,364,976	11/15/1994	Kallenbach	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> *Number <sup>4</sup> *Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		CN 1062307	07/01/1992	Cooper		
		CN 1125639	07/03/1996	Yue		
		CN 1125640	07/03/1996	Yue		
		CN 1184797	06/17/1998	He		
		CN 1232814	10/27/1999	He		
		CN 1246467	03/08/2000	Xie		

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/586,510
Filing Date	July 18, 2006
First Named Inventor	Yigong He et al.
Art Unit	1764
Examiner Name	not yet assigned
Attorney Docket Number	31411/04002

Sheet 2 of 4

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5,391,527	02/21/1995	Kojima et al.	
		US- 5,475,178	12/12/1995	Del Rossi et al.	
		US- 5,489,729	02/06/1996	Benazzi et al.	
		US- 5,731,256	03/24/1998	Benazzi et al.	
		US- 5,739,074	04/14/1998	Kocal et al.	
		US- 6,103,947	08/15/2000	Barger	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		CN 1331065	01/16/2002	China Petroleum		
		CN 1340491	03/20/2002	China Petroleum		
		EP 714 871	06/05/1996	Haldor Topsoe		
		GB 1389237	04/03/1975	Universal Oil Products		
		GB 1432720	04/22/1976	Mobil Oil Corporation		
		JP 1245853	10/02/1989	Teikichi		

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/586,510
Filing Date	July 18, 2006
First Named Inventor	Yigong He et al.
Art Unit	1764
Examiner Name	not yet assigned
Attorney Docket Number	31411/04002

Sheet 4

of

4

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		International Search Report from PCT/CN2005/000087 dated May 19, 2005.	
		Hutson, Jr, Thomas et al "Phillips HF Alkylation Process for Alkylation of C3 C4 and C5 Olefins" pp I-23 - I-28, Chapter 1.2 Handbook of Petroleum Refining Processes, 1996.	
		Albright, LF et al "Alkylation of Isobutane with C4 Olefins. 1. First-Step Reactions Using Sulfuric Acid Catalyst", Ind Eng Chem Res 1988, 27, 381-386.	
		Albright, LF et al "Alkylation of Isobutane with C4 Olefins. 2. Production and Characterization of Conuunct Polymers", Ind Eng Chem Res 1988, 27, 386-391.	
		Albright, LF et al "Alkylation of Isobutane with C4 Olefins. 3. Two-Step Process Using Sulfuric Acid as Catalyst", Ind Eng Chem Res 1988, 27, 291-397.	
		Oil Refining Technology in China, China Petrochemical Press, pp. 206-217, 1991.	
		Written Opinion from PCT/CN2005/00087 dated May 19, 2005.	
		International Preliminary Report on Patentability from PCT/CN2005/00087 dated December 21, 2005.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.